

Register No:

Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION (R), MAY 2024**Chemical Engineering****(2020 SCHEME)****Course Code : 20CHT422****Course Name : Petroleum Refinery Engineering****Max. Marks : 100****Duration:3 Hours****PART A***(Answer all questions. Each question carries 3 marks)*

1. Define the following:
a. Aromatics b. Naphthenes c. Olefins
2. What do you mean by the complexity of the refinery?
3. Explain the significances of Ejector in a Vacuum column.
4. What are the safety aspects associated with the Heater operation?
5. Write the different steps involved in the free radical mechanism with an example.
6. What are the feed stock characteristics for FCCU?
7. Compare the Claus and Superclaus process of sulphur recovery unit.
8. What is the role of a DHDS unit in a refinery?
9. What are the properties and specification of kerosene?
10. List out the different additives used in the lubricating oil.

PART B*(Answer one full question from each module, each question carries 14 marks)***MODULE I**

11. a) What are the different laboratory distillation techniques used for crude oil characterization. 10
Which among these has the highest efficiency?
b) Explain the procedure for the pipe line transportation of crude oil? 4

OR

12. a) Explain the mud fluid circulation system with a neat sketch. 8
b) Write a note on composition of crude oil. 6

MODULE II

13. Explain the working of Atmospheric distillation unit and Vacuum distillation unit with neat sketches. 14

OR

14. a) What are the different types of impurities in crude oil? 4
b) Explain the working of Electric desalter with a neat sketch and process variables. 10

MODULE III

15. Explain the hydrocracking process with its application, major reactions involved and a neat sketch. 14

OR

16. Explain the different Coking operations with neat sketches. 14

MODULE IV

17. a) Explain the amine absorption method for LPG treatment with a neat PFD. 8

b) Explain the process of isomerization with a neat diagram. 6

OR

18. a) With a neat diagram explain the working of sulphuric acid alkylation process. 10

b) Discuss the significance of hydrotreatment in the refinery. 4

MODULE V

19. a) With neat diagram explain dewaxing process by chilling and pressing. 10

b) List out the properties of LPG. 4

OR

20. a) Explain the properties, test methods and uses of Gasoline in detail. 10

b) What are the additives used in gasoline? 4
